F. J. Wel

SCIENCE ABSTRACTS

INDEX TO VOL. XL

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SECTION A.—PHYSICS

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INDEX

SECTION A.—PHYSICS

1937

KEY

TO

SUBJECT INDEX.

The Domain of Physics is divided into eight Main Classes (*e.g.*, **GENERAL PHYSICS**). Each of these Classes is, in general, divided into a number of Sections the titles of which are known as Key-Headings (*e.g.*, **Elasticity and Plasticity**), and these Sections are in turn divided into Sub-Sections under titles known as Sub-Headings (*e.g.*, " Photoelasticity "). The Key-Headings are given below arranged in alphabetical order in their classes, and the scheme of Sub-Headings adopted is indicated in the remainder of the Key.

In the Subject Index the papers are grouped under the Sub-Headings of their appropriate Key-Headings, and these Key-Headings are arranged in alphabetical order throughout the whole Index.

The general form of entry of a paper consists of its full Title, the Author's Name and the Abstract Number assigned to the paper, the sequence of the entries under any Sub-Heading being the order of publication of the Abstracts as indicated by their Abstract Numbers.

Papers on **Apparatus and Instruments** have been given an additional classification according to their Names, arranged in alphabetical order, in a **Supplementary Index** which immediately follows the SUBJECT INDEX.

For electrical papers of essentially technical interest the reader should refer to " Science Abstracts, Section B.—Electrical Engineering."

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Colloids.
Crystal Structure and Properties.
Density.
Diffusion and Osmosis.
Elasticity and Plasticity.
Gravitation.
Hydrodynamics and Aerodynamics.
Kinetic Theory of Matter.
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Mass (Standards, Measurements, Apparatus).
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Comets and Meteors.
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Dynamical Problems (Astronomical).
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Colorimetry.
Electro-Optical and Magneto-Optical Effects.
Fluorescence and Phosphorescence. Luminescence and Afterglow.
Interference, Diffraction and Scattering.
Photochemistry (including Photography).
Photometry.
Polarisation.
Radiation, Emission.
Radiation, General Theory.
Radiation, Mechanical Effects.
Reflection, Refraction and Dispersion.
Spectroscopy.
Velocity of Light.
Vision.
X-Rays.

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Conduction.
Convection.
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Thermodynamics.
Vapour Pressure.

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Conduction and Discharge in Gases.
Conduction in Solids and Liquids.
Dielectrics and Capacitance.
Electrochemistry.
Electrons, Positrons and Protons, including Applications.
Electrostatics.
Galvanomagnetic and Thermomagnetic Effects.
Magnetism and Electromagnetism.
Medical Radiology and Electrology
Oscillations and Waves.
Photoelectricity.
Piezoelectricity.
Thermionics.
Thermoelectricity.

Conduction (Electric) in Solids and Liquids. Page 1329.

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3. Current Measurement (Apparatus and Methods).
4. Resistance Measurement (Apparatus and Methods).
5. A.C. Resistance. Skin Effect.
6. Effects of Temperature, Pressure and Mechanical Stress on Resistivity.
7. Surface Conduction. Contact Resistance (including Contact Rectifiers).
8. Special Effects (Supraconductivity, etc.).
9. Conductivity :
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    (*b*) Liquids (including Solutions).
    (*c*) Dielectrics.
10. Unclassified.

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Photoconductivity, *see* Photoelectricity, 4.
Rectifiers (other than Contact) and Rectification, *see* Oscillations, Electric, 3.
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    (*b*) Propagation of Heat in Steady or Variable State.
2. Conductivity Coefficients :
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    (*b*) Solids.
    (*c*) Experimental Methods.
3. Unclassified.

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2. Forced Convection.
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Cross-Reference :
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    (*c*) Organic.
    (*d*) Biological.
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4. Morphology of Crystals (Crystal Form, Habit, Growth).
5. Optical Properties.
6. Physical Properties (other than Optical).
7. Apparatus and Technique.
8. Unclassified.

Cross-References :
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Photoelectric Effects, *see* Photoelectricity, 2.
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2. Density of Liquids.
3. Density of Solids.
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5. Unclassified.

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   (*c*) Liquids and Colloids.
3. Effects of Electric and Magnetic Fields
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5. Effects of Mechanical Stress, Temperature and Moisture.
6. Dielectric Loss.
7. Capacitance and its Measurement.
8. Unclassified.

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Cross-References :
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   (*b*) Liquids and Solids.
   (*c*) Experimental Methods.
2. Unclassified.

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3. Relations between Elastic Coefficients and other Physical Properties.
4. Plasticity.
5. Photoelasticity.
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7. Strength and Failure Tests.
8. Apparatus and Technique.
9. Unclassified.

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5. Electrode Potentials and Electrode Phenomena.
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5. Waves.
6. Electron Optics.
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5. Unclassified.

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3. Luminescence and Afterglow.
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   - (*b*) Ettingshausen Effect.
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3. Diffraction.
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- Electric Waves, *see* Oscillations and Waves, Electric, 6.
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3. Diamagnetism and Paramagnetism.
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6. Magneto-Mechanical Effects (Gyromagnetic Effect and Magnetostriction).
7. Apparatus and Technique.
8. Unclassified.

Cross-References :
  - Earth's Magnetism, *see* Terrestrial Electricity and Magnetism, 2.
  - Eddy Currents, *see* Conduction (Electric) in Solids and Liquids, 5.

Cross-References (contd.) :
  - Effect of Magnetic Field on Resistance, *see* Galvanomagnetic and Thermomagnetic Effects.
  - Inductive Networks, *see* Alternating-Current Networks, 1.
  - Instruments for Measuring Current, Voltage and Resistance, *see* Conduction (Electric) in Solids and Liquids, 2, 3 and 4.
  - Skin Effect, *see* Conduction (Electric) in Solids and Liquids, 5.
  - Units, *see* Mathematical Methods etc., 3.

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2. Theory of Measurements, Probability and Errors.
3. Units and Dimensions.
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3. Statistical Mechanics.
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  - Astronomical Dynamics, *see* Dynamical Problems (Astronomical).
  - Atomic and Molecular Rays, *see* Kinetic Theory of Matter, 3.

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  - Hydrodynamics and Aerodynamics, *see under.*
  - Kinetic Theory, *see* Kinetic Theory of Matter.
  - Wave Motion, *see* Elasticity and Plasticity, 6, *and* Seismology.

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7. Meteorological Instruments.
8. Unclassified.

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   - (*j*) Unclassified.

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- Fluorescence Spectra, *see* Spectroscopy, 5.
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2. Photoelectric Emission (Special Substances).
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5. Photovoltaic Cells. Becquerel Effect.
6. Applications.
7. Unclassified.

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4. Spectrophotometry.
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6. Unclassified.

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2. Polarisation by Refraction.
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5. Apparatus and Technique.
6. Unclassified.

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2. Selective Radiation, Visible and Ultra-Violet Region.
3. Selective Radiation, Infra-Red Region.
4. Cosmic Rays.
5. Sources of Radiation (All Types).
6. Unclassified.

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Electric Waves, *see* Oscillations and Waves, Electric, 6.

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4. α-Rays.
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7. Apparatus and Methods of Measurement.
8. Unclassified.

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3. Aberration (Spherical and Chromatic), Tests for Definition, Distortion, Astigmatism, etc.
4. Refraction and Refractive Indices.
5. Dispersion.
6. Glasses, Optical Media and Materials.
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    (*b*) Refractometers.
    (*c*) Goniometers.
    (*d*) Projectors (Lighthouses, Lanterns, etc.).
    (*e*) Lenses, Objectives, Prisms, Eyepieces.
    (*f*) Unclassified.
8. Unclassified.

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Electric Waves, *see* Oscillations and Waves, Electric, 6.
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2. General Theory of Relativity.
3. Unitary Field Theory.
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3. Apparatus and Technique.
4. Unclassified.

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    - (*d*) Line Absorption in Visible and Ultra-Violet.
    - (*e*) Analysis of Line Spectra.
    - (*f*) Photometric Intensities and Contours of Lines.
    - (*g*) Hyperfine Structure and Nuclear Moments.
    - (*h*) Theoretical Papers on Line Spectra.
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    - (*a*) Emission Bands in Infra-Red.
    - (*b*) Emission Bands in Visible and Ultra-Violet.
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9. Instruments and Apparatus.
10. Unclassified.

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1. Parallax, Magnitudes, Diameter, Mass, Density.
2. Motions.
3. Spectra.
4. Temperature.
5. Constitution and Evolution.
6. Galactic System.
7. Star Clusters and Clouds.
8. Variable Stars, Binaries and Novae.
9. Catalogues and Stellar Photography.
10. Unclassified.

Sun. Page 1464.

1. Chromosphere and Prominences.
2. Corona. Eclipse.
3. Sunspots and Faculæ.
4. Temperature, Radiation and Solar Constant.
5. Parallax, Size, Motion.
6. Spectrum.
7. Magnetism.
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1. Cohesion.
2. Surface Tension Theory.
3. Determination of Capillary Constants.
4. Relation between Capillary Constants and other Properties. Parachors.
5. Films.
6. Electrocapillary Phenomena.
7. Apparatus and Technique.
8. Unclassified.

Cross-References :
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For further papers on Cohesion, *see* Thermodynamics, 2.

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1. Scales and Standard Temperatures.
2. Thermometers (other than Electrical).
3. Thermometers and Pyrometers (Electrical).
4. Pyrometers (Optical and Total Radiation)
5. Accessories for Temperature Measurement and Control.
6. Unclassified.

Cross-References :
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1. Atmospheric Electricity. Ionosphere. Lightning.
2. Earth's Magnetic Field, and Variation of. Aurora.
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4. Effect of Intense Fields (Auto-Electronic Effect).
5. Emission of Positive Ions.
6. Conduction in Flames.
7. Unclassified.

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2. Heat of Combustion.
3. Heats of Formation and Dissociation.
4. Flames, Ignition, Explosion.
5. Effect of Temperature on Chemical Processes and Equilibria.
6. Apparatus and Technique.
7. Unclassified.

Cross-References :

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Heat of Adsorption, *see* Adsorption, 2.

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1. Fundamental Principles (1st and 2nd Laws). Determination of Mechanical Equivalent of Heat.
2. Equations of State and Critical Phenomena.
3. Application to Specific Heats and Latent Heats.
4. Phase Rule and Applications.
5. Measurements of and Formulæ for Entropy, Internal Energy, Total Heat (Enthalpy), Free Energy (Thermodynamic Potential at Constant Volume and Temperature), Gibbs' Function (Phase Potential, Thermodynamic Potential at Constant Pressure and Temperature), etc.
6. Thermodynamics of Chemical Processes.
7. Irreversible Phenomena.
8. Unclassified.

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Absolute Scale of Temperature, *see* Temperature, Measurement of, 1.

Kinetic Theory, *see* Kinetic Theory of Matter.

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2. Measurement of Thermoelectric Power, Peltier Coefficient, Thomson Coefficient
3. Unclassified.

Cross-Reference :

Thermoelectric Measurement of Temperature, *see* Temperature, Measurement of, 3.

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1. Solar and Stellar Time.
2. Secondary Standards, Apparatus and Measurements.
3. Unclassified.

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3. Band Spectra:
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Critical Potentials, *see* Conduction (Electric) and Discharge in Gases, 5.

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1. Parallax, Magnitudes, Diameter, Mass, Density.
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2. Secondary Standards, Apparatus and Measurements.
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11. Applications (Industrial Radiography, and Chemical Analysis).
12. Apparatus for X-Ray Spectroscopy.
13. Unclassified.

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2. Infra-Red Region.
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4. Apparatus and Technique.
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3. Vibrating Columns of Air or Other Gases.
4. Strings.
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6. Propagation in the Atmosphere.
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